

REMARKS

Applicants submit the present *Amendment* in response to the Office Action mailed February 22, 2008. Applicants have amended Claims 26 and 33, and have added a new Claim 37. For the reasons discussed below, Applicants respectfully submit that all of the pending claims are patentable over the cited art and are in condition for allowance.

I. Claims 1, 3-8 and 10-13 Are Patentable Over the Cited Art

Claims 1, 3, 5-7 and 10-13 each stand rejected under 35 U.S.C. § 103(a) as being obvious over U.S. Patent Publication No. 2002/0173277 to Takao et al. ("Takao") in view of U.S. Patent Publication No. 2002/0025810 to Takayama et al. ("Takayama"). Claim 4 stands rejected under 35 U.S.C. § 103(a) as being obvious over Takao in view of Takayama and U.S. Patent No. 6,115,615 to Ota et al. ("Ota"). Claim 8 stands rejected under 35 U.S.C. § 103(a) as being obvious over Takao in view of Takayama and U.S. Patent Publication No. 2002/0062472 to Medlock et al. ("Medlock"). Applicants respectfully traverse the rejections of these claims.

With respect to the rejection of Claim 1, Applicants, as an initial matter, acknowledge with appreciation the withdrawal of several previously asserted grounds for the rejection of Claim 1. In particular, Applicants appreciate the withdrawal of the following arguments that were asserted in the previous Final Office Action:

1. The argument that FIG. 6 of Takao discloses a mobile station that includes a switching controller and a signal processing unit, and that the embodiments of FIGS. 6 and 10 of Takao can properly be combined together with Takayama to arrive at the invention of Claim 1. (Final Action at 2-3).
2. The argument that Takao teaches that the signal processing unit **33** of the mobile station "converts the digital signal into baseband units" and that the switching controller **34** of the mobile station "uses this signal to synchronize the mobile station with the base station." (Final Action at 2, citing to ¶¶ 0063, 0067 of Takao).
3. The argument that "the switching controller is responsive to the signal processing unit because the signal processing unit provides the baseband signals that will be used by the switching controller." (Final Action at 4).

Otherwise, Applicants respectfully continue to assert that Takao fails to disclose or suggest "at least one control unit that is responsive to the data processor and that controls

communications with an access point over a first communications channel and over a second full-duplex communications channel" as is recited in Claim 1. The Final Action states that the "switching processing unit 33" of Takao comprises the "data processing unit" and that the "switching controller 34" of Takao comprises the "at least one control unit" of Claim 1. However, there is simply no teaching or suggestion in Takao that switching controller 34 is responsive to the switching processing unit 33. In fact, Takao includes two express teachings showing that the switching controller 34 is not responsive to the switching processing unit 33 as is required by Claim 1. These teachings include:

1. FIG. 10 of Takao shows that there is no connection between the switching controller 34 and switching processing unit 33, showing that the switching controller 34 is not responsive to the switching processing unit 33.
2. The specification expressly states that "the switching controllers 53 and 34 switch the communication mode of the system based on the control signal from the signal processing unit 50 of the base station." (Takao at ¶ 0067).

Thus, the specification and figures of Takao clearly and repeatedly teach that the "switching controller 34" is controlled solely by control signals generated by signal processing unit 50 of base station 10₁. As such, Takao simply fails to teach or disclose at least one control unit that is responsive to the data processor of the wireless terminal as is recited in Claim 1.

Applicants note that the Office Action does not challenge the above showing, which was included in Applicants' previous response. Instead, the Response to Arguments section of the Office Action states that "Takayama discloses a mobile station which consists of a processing unit and a MAC controller" and that "it is well known that the processing unit executes control over the entire mobile station." This new argument, however, fails to establish that the combination of Takao and Takayama render Claim 1 unpatentable for at least three reasons.

First, Claim 1 stands rejected based on the assertion that Takao discloses a wireless terminal which has a "control unit that is responsive to [a] data processor." The argument that Takayama suggests this recitation thus does not support the pending rejection, which relies solely on Takao with respect to the recitation of Claim 1 at issue here.

Second, the Office Action does not provide any indication as to why a person of skill

in the art would modify the control unit set-up of Takao based on Takayama. As noted above, Takao teaches providing switching controllers **53** and **54** at the base station (as opposed to the wireless terminal) to switch the communication mode of the system. There is simply no teaching or suggestion in either Takao or Takayama of using a data processor at the wireless terminal to control switching of the communication system of Takao. Instead, the only suggestion for such a system is Applicants' present disclosure, which is not prior art and cannot be used to support the present rejection.

Third, the Office Action takes the position that based on Takayama, "the MAC control unit has to be responsive to the processing unit in order to communicate with an access point." While Applicants will not debate whether or not this statement is correct, what is clear is that the switching controller **34** need not be controlled by anything in the wireless terminal, as Takao clearly discloses that the switching controller may be, and in fact is, controlled by a switching controller located at the base station.

Thus, for each of the above reasons, the cited art does not disclose or suggest "at least one **control unit** that is responsive to the data processor and that controls communications with an access point over a first communications channel and over a second full-duplex communications channel" as is recited in Claim 1. Accordingly, the rejection of Claim 1 should be withdrawn.

Claims 3-8 and 10-13 depend from Claim 1, and hence are patentable over the cited art at least as depending from a patentable base claim. In addition, Applicants respectfully submit that at least Claims 3-4, 8 and 12-13 are independently patentable over the cited art.

In particular, Claim 3 recites that the wireless terminal further includes "a traffic control unit that is responsive to the data processor." The Office Action states that the "switching controller is used to synchronize with the base station, which eventually leads to the switching of modes . . . that is responsive to the data processor." However, as discussed above, it is beyond question that the switching controller **34** of Takao is **not** responsive to the signal processing unit **33**. As such, the traffic control unit of Claim 3 is not taught or suggested by Takao, providing an independent basis for withdrawal of the rejection of Claim 3. Claim 4 depends from Claim 3, and hence is patentable over the cited art for at least each of the reasons that Claim 3 is patentable over the cited art.

Claim 8 recites that "the first communications channel is implemented as an orthogonal frequency division multiplexing channel and wherein the second communications channel is implemented as a direct sequence spread spectrum communications channel." The Office Action states that the recitations of Claim 8 are taught by Medlock, and that it would have been obvious to modify the combination of Takao and Takayama based on Medlock. Applicants respectfully disagree. The cited portion of Medlock merely states that the invention described therein may be implemented in a wide variety of communications systems, including direct sequence spread spectrum systems OFDM systems. It does not teach or suggest using both an OFDM channel and DSSS channel in the same system as is recited in Claim 8. Accordingly, even if Medlock could properly be combined with the other cited references, which it cannot, the resulting combination still fails to disclose or suggest the invention of Claim 8.

The Response to Arguments section of the Office Action asserts that Medlock discloses a communication system which includes channels that use both OFDM and DSSS, citing to paragraphs 2 and 30 of Medlock. However, these portions of Medlock cited by in the Office Action do not disclose or suggest that "the first communications channel is implemented as an orthogonal frequency division multiplexing channel and wherein the second communications channel is implemented as a direct sequence spread spectrum communications" as recited in Claim 8. Instead, paragraph 0002 of Medlock states that various wireless applications use different communications protocols, including OFDM and DSSS, which results in incompatibility and increased design, testing and manufacturing costs. Paragraph 0030 of Medlock states that the invention described therein can be implemented in a wide variety of communications systems, including DSSS and OFDM systems. Neither portion of Medlock, however, provide any teaching or suggestion of implementing a first communications channel in a system as an orthogonal frequency division multiplexing channel and a second communications channel in the system as a direct sequence spread spectrum communications channel. Accordingly, Claim 8 is patentable over the cited art for this additional reason.

Claim 12 recites that "the first and second communications channel are implemented using different multiple access techniques." The Office Action states that Takao at

paragraphs 27-28 discloses the recitations of Claim 12. However, as explained in Applicants' previous response, the cited portions of Takao include no disclosure whatsoever of the recitations of Claim 12. Instead, paragraph 0027 simply discusses problems with various prior art access techniques, and paragraph 0028 merely states that it is an object of the invention of Takao to "realize an efficient use of the radio frequency resources." Notably, the Response to Arguments section of the current Office Action does not even attempt to address Applicants showing that the subject matter of Claim 12 is simply not taught or disclosed in the prior art. Accordingly, the rejection of Claim 12 should be withdrawn for these additional reasons.

Claim 13 recites that "the first communications channel and the second communications channel are implemented according to different versions of the 802.11 standard." The Office Action states that IEEE 802.11 refers to a family of standards, and that therefore Takayama discloses the recitations of Claim 13. Applicants respectfully disagree. There is simply no teaching or suggestion in Takayama of implementing the first communications channel according to a first version of the 802.11 standard, while implementing the second communication channel according to a different version. As such, Applicants respectfully submit that Claim 13 is also independently patentable over the cited art.

II. Claims 14-25 Are Patentable Over the Cited Art

Independent Claim 14 and Claims 15-18, 22 and 24-25 depending therefrom stand rejected as being obvious over the combination of Takao and U.S. Patent Publication No. 2004/0073361 to Tzamaloukas et al ("Tzamaloukas"). Claims 19-20 stand rejected as being unpatentable over Takao in view of Tzamaloukas and U.S. Patent No. 6,480,480 to Du ("Du"). Claim 21 stands rejected as being unpatentable over Takao in view of Tzamaloukas and Ota. Claim 23 stands rejected as being unpatentable over Takao in view of Tzamaloukas and Medlock. Applicants also respectfully submit that Claims 14-25 are patentable over the cited art.

Independent Claim 14 recites:

14. A wireless communications system, comprising:

a wireless terminal that transmits and receives data associated with at least first and second applications that are running on the wireless terminal;

an access point that serves as an interface between the wireless terminal and at least one processing server that is located on at least one external network;

a first communications channel between the wireless terminal and the access point for transmitting data associated with the first application from the access point to the wireless terminal; and

a second communications channel between the wireless terminal and the access point for transmitting data associated with the second application between the wireless terminal and the access point.

In rejecting Claim 14 under Section 103, the Office Action states that Takao discloses all of the recitations of Claim 14 except for "first and second applications that are running on the wireless terminal," which the Office Action states is disclosed by Tzamaloukas. (Office Action at 6-7). Applicants respectfully disagree with the rejection of Claim 14 for the following reasons.

The last two clauses of Claim 14 recite that the first communications channel transmits data associated with a first application that is running on the wireless terminal and that the second communications channel transmits data associated with a second application that is running on the wireless terminal. The Office Action states that Takao at paragraphs 0005 and 0029 discloses these recitations of Claim 14. However, the cited portions of Takao do not discuss first and second applications that are running on the wireless terminal, and neither Takao nor Tzamaloukas disclose or suggest using a first communications channel for transmitting data associated with a first application while using a second communications channel for transmitting data associated with a second application as is recited in Claim 14. Accordingly, Applicants respectfully submit that the combination of Takao and Tzamaloukas does not render Claim 14 obvious for at least this reason.

The Response to Arguments section of the Office Action states that Tzamaloukas discloses different types of applications running on the mobile station and that Takao discloses using multiple channels, and that this combination somehow discloses the last two recitations of Claim 14. However, these references, either alone or in combination, do not suggest using the first communications channel for transmitting data associated with a first

application while using a second communications channel for transmitting data associated with a second application as is recited in Claim 14.

Claims 15-25 depend from Claim 14, and hence are patentable as depending from a patentable base claim. In addition, Applicants respectfully submit that at least Claims 15, 17 and 23 are independently patentable over the cited references.

Claim 15 recites that "the second communications channel is further used to transmit control information associated with the first application from the wireless terminal to the access point." While the Office Action cites to paragraphs 0022 and 0029 of Takao as disclosing the recitations of Claim 15, Applicants respectfully submit that neither of these paragraphs disclose or suggest transmitting the data associated with a first application over a first channel while transmitting the control information associated with that application over a second channel as is recited in Claim 15. Accordingly, Claim 15 is independently patentable over the cited art. Applicants note that the Response to Arguments section of the Office Action does not even attempt to address this argument, which was included in the previous Office Action.

Claim 17 recites that "the throughput of the first communications channel exceeds the throughput of the second communications channel." The Office Action states that paragraph 0058, lines 1-6 of Takao discloses the recitation of Claim 17. However, what paragraph 0058 of Takao discusses is switching to an FDD/TDD mixed mode when the uplink and downlink data volumes become asymmetric. This does not disclose or suggest the recitations of Claim 17.

Claim 23 recites that "the first communications channel is implemented as an orthogonal frequency division multiplexing channel and wherein the second communications channel is implemented as a direct sequence spread spectrum communications channel." The Office Action states that Medlock discloses the recitations of Claim 23. However, as discussed above with respect to the rejection of Claim 8, the cited portion of Medlock merely states that the invention described therein may be implemented in a wide variety of communications systems, including direct sequence spread spectrum systems OFDM systems. It does **not** teach or suggest using both an OFDM channel and DSSS channel as is

recited in Claim 23. Accordingly, the rejection of Claim 23 should be withdrawn for this additional reason.

III. Claims 26-32 Are Patentable Over the Cited Art

Claims 26-28 and 30 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Takao in view of Tzamaloukas. Claim 29 stands rejected as being unpatentable under 35 U.S.C. § 103(a) over Takao in view of Tzamaloukas and Medlock, and Claims 31-32 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Takao in view of Tzamaloukas and Takayama. Applicants likewise submit that Claims 26-32 are patentable over the cited art.

Claim 26 has been amended to recite that the first and second communications channels are implemented using different access techniques. As discussed above with respect to the rejection of Claims 8 and 12, the cited art does not disclose or suggest such a technique. In addition, Claim 26 recites "receiving at the wireless terminal over a first communications channel . . . application data associated with a first of the plurality applications" and "establishing a transmission path between the wireless terminal and the access point over a second communications channel for application data associated with a second of the plurality of applications." As discussed above with respect to Claim 14, neither Takao nor Tzamaloukas discloses or suggests such a method of supporting a plurality of applications on a wireless terminal. Accordingly, the rejection of Claim 26 should be withdrawn for at least these reasons.

Claims 27-32 depend from Claim 26 and hence are patentable at least as depending from a patentable base claim.

IV. Claims 33 and 35-36 Are Patentable Over the Cited Art

Claims 33 and 36 stand rejected as being unpatentable under 35 U.S.C. § 103(a) over Takao in view of Tzamaloukas and Takayama. Claim 35 stands rejected as being unpatentable under 35 U.S.C. § 103(a) over Takao in view of Tzamaloukas, Takayama and Medlock. Claim 33, as amended, recites:

33. A wireless communication system for transmitting and receiving data from a plurality of applications, comprising:

a wireless terminal for transmitting and receiving data associated with a first of the plurality of applications and for running the first application;

an access point interfaced with an external processing server, the access point transmitting data associated with a second application of the plurality of applications to the wireless terminal, and forwarding the data associated with the first application that is received from the wireless terminal to the external processing server; and

a plurality of wireless channels for transmitting and receiving the data associated with the first and second applications between the wireless terminal and the access point;

wherein the plurality of wireless channels operates in different frequency bands and have different throughputs;

wherein the wireless terminal includes a data processor and at least one control unit that is responsive to the data processor and that controls communications with an access point over the plurality of wireless channels; and

wherein the second application is remote from the wireless terminal.

As amended, Claim 33 now includes the recitation of Claim 1 that "the wireless terminal includes a data processor and at least one control unit that is responsive to the data processor and that controls communications with an access point." Thus, Applicants respectfully submit that Claim 33 is patentable over the cited art for at least the reasons that Claim 1 is patentable over the cited art. Accordingly, Applicants respectfully submit that Claim 33, and Claims 35-36 depending therefrom, are also patentable over the cited art.

In re: Hyunwoo Cho et al.
Serial No.: 10/806,903
Filed: March 23, 2004
Page 18 of 18

V. Conclusion

For each of the above, reasons, Applicants respectfully request allowance of the claims and passing of the application to issue in due course.

Respectfully submitted,



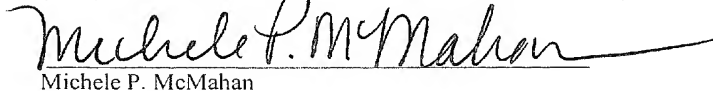
D. Randal Ayers
Registration No. 40,493
Attorney for Applicant

Customer Number 20792

Myers Bigel Sibley & Sajovec, P.A.
P.O. Box 37428
Raleigh, NC 27627
919-854-1400
919-854-1401 (Fax)

CERTIFICATION OF TRANSMISSION

I hereby certify that this correspondence is being transmitted via the Office electronic filing system in accordance with § 1.6(a)(4) to the U.S. Patent and Trademark Office on May 16, 2008.


Michele P. McMahan